

ASSOCIATIONS BETWEEN SHORT-TERM CHANGES IN AMBIENT PARTICULATES AND GASEOUS POLLUTANTS AND TRANSIENT ISCHAEMIC ATTACK

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Background and Aims: While several studies have investigated the effects of short-term air pollution on cardiac outcomes, less is known about its effects on cerebrovascular disease, including stroke and transient ischaemic attacks (TIA). The aim of this study was to assess the effects of short-term variation in air pollutants on the onset of TIA and minor stroke.

Methods: We performed secondary analyses of NORTHSTAR, a prospective multicentre study designed to investigate the prognostic role of peripheral and genetic inflammatory markers in patients with recent TIA or minor stroke. A case crossover study was conducted to determine the association between occurrence of TIA or minor stroke and changes in ambient PM₁₀ or gaseous pollutants.

Results: A total of 709 cases of TIA and minor stroke were recruited from the Manchester (n=335) and Liverpool (n=374) areas. The participants were mostly elderly patients with an age range of 27-93 years and a mean of 66.8 ± 11. Data for the Manchester cohort showed an association between ambient nitric oxide (NO) and risk of occurrence of TIA or minor stroke with a lag of 3 days (odds ratio 1.06, 95% CI 1.01 – 1.11), whereas no association was found for the patients from Liverpool. Effects of similar magnitude, although not statistically significant, were generally observed with other pollutants. In a two pollutant model the effect of NO remained stronger and statistically significant when analysed in combination with CO and SO₂, but was marginal in combination with NO₂ or ozone and non-significant with PM₁₀. There was evidence of effect modification by age, gender and season.

Conclusions: Our data suggest an association between changes in ambient NO concentration (which may have been a surrogate for another pollutant), and the occurrence of TIA in Greater Manchester.

References: Selvarajah JR *et al.*: Prognosis in patients with transient ischaemic attack (TIA) and minor stroke attending TIA services in the

North West of England: The NORTHSTAR Study. *J Neurol Neurosurg Psychiatry* 2008, 79: 38-43.